Hazard Control Plan Cover Sheet

Work/Activity: Chain-of-Custody for Environmental Samples

Identification Number: LANL-RRES-ECO-SF-HCP/OP-008, R4

Author:

Name	Signature	Date
Phil Fresquez		

Initial Risk Level: Low

Consultation

__ Not Required __ Required

Concurrence

__ Not Required __ Required

Name (ECO Subject-Matter Expert)	Signature (as required)	Date
Name (Independent Peer)	Signature (as required)	Date
Safety Officer	Signature	Date
Team Leader	Signature	Date

Residual Risk Level: Minimal

Authorization of Work:

Name (Group or Deputy Group Leader)	Signature	Date

Next Review Date:

Chain-of-Custody for Environmental Samples

Los Alamos National Laboratory
LANL-RRES-ECO-SF-HCP/OP-008, R4
Approval Date: 04/03

1.0 INTRODUCTION

1.1 Background

RRES-ECO routinely collects a wide range of environmental samples in support of regulatory compliance and environmental surveillance programs. Therefore, it is critical that the samples be handled with rigorous quality control. Although a chain-of-custody violation will not invalidate data for environmental surveillance programmatic uses and trending, any violation of chain-of-custody will be documented so that data can be properly qualified for other uses.

Adequate controls must be established to ensure that only correct and acceptable samples will be processed in support of RRES-ECO operations. Identification and documentation of each sample will be established and maintained to assure that each sample is traceable and identifiable.

1.2 In this Document

This procedure addresses the following major topics:

1.3 History of Revision

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	10/94	New document
1	10/95	Revised into new format.

0	12/96	New criteria (Safety Concerns)
1	3/99	Reformatted in accordance with LIR300-00-01, Safe Work Practices
2	4/01	Added new Section 9.0, Training
3	4/02	Change in directorate.
4	4/03	Team name change to Environmental Surveillance.

2.0 PURPOSE

This Ecology Group (RRES-ECO) procedure ensures the permanent traceability, validity, and identification of all samples collected by the group through proper labeling and documentation so that the whereabouts of samples can be traced, followed, and determined at all times.

3.0 SCOPE

This procedure applies to personnel in RRES-ECO who collect any samples required to have chain-of-custody documentation.

4.0 DEFINITIONS

4.1 Terms None.

5.0 RESPONSIBILITIES

5.1 Principal Investigator

Principal investigators (PIs) are responsible for

- Defining the components of and the processes associated with the work in sufficient detail to enable hazards to be identified and adequately controlled;
- Determining required training for workers;
- Ensuring that assigned workers are trained and meet authorization to work standards; and
- Ensuring that workers have the knowledge, skills, and abilities needed to perform the work safely.

5.2 Workers Workers, with assistance as needed, are responsible for

- Identifying and evaluating the hazards associated with the work, as necessary, to ensure that the controls are adequate to perform the work safely;
- Defining, establishing, and maintaining, as assigned, a hazard-control system that effectively mitigates the hazards associated with the work and meets institutional and facility requirements;
- Determining that the work has been authorized before proceeding with it;
- Acquiring the knowledge and skills needed to perform the work;
- Obtaining and maintaining authorization to perform the work;
- Understanding and following all operational requirements and restrictions related to the work;
- Performing the work safely;
- Improving the safety of the work by reviewing the work, commensurate with the level of risk, and incorporating lessons learned;
- Using an appropriate change-control process to document and communicate changes made in the hazard control system; and
- Stopping the work if it seems to be unsafe.

5.0 RESPONSIBILITIES (cont.)

5.3 Line Managers/ Supervisors

Line managers/supervisors are responsible for

- Defining the scope of work;
- Ensuring that an effective hazard-control system is established to reduce the risk posed by the work to an acceptable level;
- A periodic review of the process used to assign and mitigate initial risk;
- Ensuring that institutional and facility requirements and restrictions on the work are followed;
- Authorizing the defined work, when the risk has been controlled to an acceptable level;
- Authorizing workers to perform the work, after they have documented adequate knowledge, skills, and abilities;
- Ensuring that workers perform the work safely;
- Improving the safety of the work by reviewing the work, commensurate with the level of risk, and ensuring the incorporation of lessons learned; and
- Ensuring that an appropriate change-control process is used to document and communicate changes made in the hazard-control system.

5.4 Subject Matter Expert

Not applicable to the procedures described in this document.

6.0 PRECAUTIONS AND LIMITATIONS

This document establishes the basic requirements for proper chain-of-custody procedures. This document applies to all personnel performing field procedures described in this document. Work performed under this document by LANL personnel will occur only after all other applicable procedures have been reviewed and signed as listed under Section 7.0 of this document.

7.0 SAFE WORK PRACTICE REQUIREMENTS

7.1 Define the Work: Collection of Samples

Project Personnel - In accordance with the procedure for field work, a minimum of two people is required to go out in the field.

Planning Tasks – Project personnel will plan their task-specific sample labeling early on in the project to avoid confusion in the field.

Collecting Samples - Complete the Chain-of-Custody Record form (Attachment 1) in the field after sample collection.

Correcting Data - If data need to be corrected on the form, cross out any incorrect information with a single line, initial and date the cross-out, and fill in the correct data.

7.0 SAFE WORK PRACTICE REQUIREMENTS (cont.)

Labeling Samples - Use a black permanent marker to record the following information directly onto the plastic containers:

- site/sample identification number,
- date of collection,
- time of collection,
- preservative used (if any), and
- analysis to be performed on the sample.

Samples to be ashed for analytical purposes should be labeled on the pyrex beaker with a lead pencil before the ashing process.

Check Samples - Check all samples before you leave the sampling area to ensure that all data on the sample labels are correct and correspond to all other documentation (such as the Chain-of-Custody Record form and the field logbook).

Relevant Project Information - Use Chain-of-Custody Record forms, special sampling forms, or field logbooks to record sampling activities and other applicable information that is relevant to the sampling project (e.g., names of sampling personnel, weather conditions, any abnormal occurrences, drawings of the site, sample locations). When you record these activities on the Chain-of-Custody Record or special sample forms, the records become a permanent part of the project-specific file.

Logbooks - Use bound logbooks that are identified for this use, that have a specific assigned tracking number used for accountability, and have consecutively-numbered pages.

After sampling and logbook are completed, sign and date the bottom of the page in the logbook containing the last entry for the sampling project.

After the last entry for the sampling project, line out the unused portion of the logbook with a single line.

Maintaining Custody of Samples - Verify that the possession and handling of samples is traceable at all times. A sample is considered in custody if it is one of the following:

- in one's physical possession,
- in one's view after being in one's physical possession,
- in one's physical possession and then locked up so that no one can tamper with it, or
- kept in a secure area where access is restricted to authorized and accountable personnel only.

Note: A secured area is an area that is locked, such as a room, cooler, vehicle, or refrigerator. If the area cannot be secured by locking, a chain-of-custody seal (Attachment 2) will be used in order to secure the area.

Chain-of-Custody Record Form - Ensure that the original Chain-of-Custody Record form accompanies the samples at all times.

7.0 SAFE WORK PRACTICE REQUIREMENTS (cont.)

Custody Seal - Use a chain-of-custody seal (Attachment 2) at any time that the samples are not in custody (as described in "Maintaining custody of samples" above).

If the sample is left in an unlocked container or room, place a custody seal across the opening of the container and the doorway.

Transferring Custody of Samples - When transferring custody of samples:

- Complete the "relinquished by/received by" and "date" sections of the Chain-of-Custody Record form every time the custody of samples is transferred
- Relinquish the samples and Chain-of-Custody Record form to the laboratory where the samples and Chain-of-Custody Record form will be reviewed. The laboratory sample custodian will sign the Chain-of-Custody Record form.
- Retain a copy of the Chain-of-Custody Record form for the RRES-ECO project-specific file.

Transferring Custody of Samples to Outside Laboratory - If the samples are being shipped to an outside laboratory, wrap a custody seal across the opening of the lid of the container.

NOTE: When the container arrives at the laboratory, the lab sample custodian will inspect the container to ensure the seal is in place and whole. If the seal is broken or missing, the lab will immediately notify the Project Director. If the container arrives with the seal intact, then the integrity of the samples can be demonstrated.

Waste Generation and Water Usage - No waste is generated during this process and no water is discharged.

7.2 Identify and Evaluate Hazards

Hazard	Initial Risk Level based on Severity and Likelihood
In the Field	
A) Off-road automobile accidents and tripping or falling hazards	LOW
B) Wildlife encounters (plague, hantavirus, ticks, etc.)	LOW
C) Environmental hazards (weather)	LOW
D) Lifting and moving heavy items	LOW
In the Laboratory	
E) Use of electrical appliances (hot plates and ovens)	LOW
F) Hot and/or broken glass	LOW
G) Splattering of hot water	LOW
H) Drying and ashing ovens	LOW
I) The Wiley Mill	LOW
J) Use of knives	LOW
K) Repetitive motion and other ergonomic hazards	LOW

7.0 SAFE WORK PRACTICE REQUIREMENTS (cont.)

7.3 Develop and Implement Controls

7.3.1 Development

Hazard	Hazard Control	Residual Risk Level
A Off-road automobile accidents and tripping or falling hazards	LANL personnel will follow operating procedures discussing off-road vehicle use and tripping or falling hazards. Appropriate footgear and clothing will be worn by all LANL personnel. Personnel will have first aid/CPR training.	MINIMAL
B Wildlife encounters (plague, hantavirus, ticks, etc.)	In accordance with recommendations set by the State of New Mexico Environmental Department, all personnel should wear long pants, long-sleeved shirts, and insect repellent. Do not handle dead or sick rodents. When you have returned from the field, perform a self-check for the presence of ticks.	MINIMAL

C Environmental hazards (weather)	LANL personnel will cease operations during inclement weather as described in RRES-ECO operating procedures for conducting general fieldwork. All work will be performed within a safe distance to vehicles. The distance will be based on current field conditions and terrain with respect to current and expected weather conditions.	MINIMAL
D Lifting and moving heavy items	Use carts and dollies. Use a helper.	MINIMAL
E Use of electrical appliances (hot plates and ovens)	Wear safety glasses, lab coat, steel-toe safety shoes, and rubber gloves. Be familiar with the operator's manuals for each piece of equipment.	MINIMAL
F Hot and/or broken glass	Wear safety glasses, lab coat, steel-toe safety shoes, and rubber gloves.	MINIMAL
G Splattering of hot water	Wear safety glasses, lab coat, steel-toe safety shoes, and rubber gloves.	MINIMAL
H Drying and ashing ovens	Use hot-mitts or pot holders when working with the ovens, hot-plates, or hot beakers.	MINIMAL

7.0 SAFE WORK PRACTICE REQUIREMENTS (cont.)

7.3.1 Development (cont.)

Hazard	Hazard Control	Residual Risk Level
I The Wiley Mill	Wear safety glasses, lab coat, steel-toe safety shoes, and rubber gloves. Be familiar with the operator's manuals for each piece of equipment.	MINIMAL
J Use of knives	When knives are being used, cut-resistant gloves should be worn to prevent injuries.	MINIMAL
K Repetitive motion and other ergonomic hazards	Take a short break every hour.	MINIMAL

7.3.2 Documentation

All personnel assigned to use chain-of-custody procedures will have read this hazard control plan/operating procedure and will have signed an acknowledgment (Attachment 3).

Any future changes to this operating procedure will be properly documented and will be reflected by the revision number that is included with the document identification number.

7.3.3 Authorization of Work

All LANL workers involved with this activity will obtain authorization from their direct supervisor, group leader, or deputy group leader. No work will be performed until this authorization has been granted. The residual risk level for performing activities related to this activity have been determined based on consultation with subject matter experts including contractor personnel and LANL personnel experienced in this type of procedure.

All work related to this activity will be reviewed, at a minimum, on an annual basis, and this document updated to reflect changes as deemed necessary.

7.3.4 Authorization of Workers

LANL workers will be granted authorization to perform this work only after they have reviewed all appropriate required documentation and training that applies to LANL personnel. All contractor personnel will perform this work only after they have provided proof of appropriate documentation that applies to contractor responsibilities.

7.4 Perform Work Safely

All personnel involved with this activity will adhere to all safety guidelines and procedures as described in the appropriate documents, including this document. Contractor personnel will be responsible for ensuring self-readiness checks before performing the work. LANL personnel will perform self-readiness checks before performing fieldwork. Field conditions, including weather conditions, will be evaluated as to the effect they will have on performing field activities safely. If activities can not be performed safely, all activities will cease until such time the LANL project leader authorizes work to resume.

7.0 SAFE WORK PRACTICE REQUIREMENTS (cont.)

7.5 Provide Feedback and Continuous Improvement

At a minimum, the activity described in this document will be evaluated annually. If any changes are made to the procedure, those changes will be evaluated as to whether or not they may introduce new hazards. Any new hazards will be evaluated and appropriate controls implemented to reduce their risk to an acceptable level. A periodic review with project personnel will be made to evaluate the accuracy of this document with respect to field operations.

8.0 RISK DETERMINATION

The determination of risk for each activity described in this document was based on the Risk Determination matrix given in LIR300-00-01, Safe Work Practices.

9.0 TRAINING

The following training must be completed and confirmed by the PI of the project before work can begin. This training is a general plan to follow proper chain-of-custody procedures. Additional training must be followed for handling biological samples (e.g., training for exposure to blood-borne pathogens as defined in applicable HCP/OPs must be taken by personnel handling blood samples):

For each worker:

- General Field Work HCP/OP (LANL-RRES-ECO-HCP/OP-001) must be read and documented.
- Thermal Stress Awareness Training must be taken when it becomes available

For each field crew:

- At least two people must have current First Aid Training.
- At least two people must have current CPR Training.
- Members must have site-specific training as required by the location where work is occurring.

10.0 REFERENCES

10.1 Source Documents

The following documents, which can be found in the Team Leader's (Phil Fresquez) Office located at TA-21, Building 210, Room 222, are referenced in this procedure:

- LA-UR-99-1117, "Environmental Monitoring Plan"
- LANL-RRES-ECO-HCP/OP-001, "General Field Work"

10.2 Document Coordination

RRES-ECO (Ecology Group) of the Risk Reduction and Environmental Stewardship Division is the group of institutional coordination responsible for developing, revising, and maintaining the contents of this document.

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Attachment 1

Los Alamos
Los Alamos, New Mexico 87545

CHAIN-OF-CUSTODY RECORD

Project Name		Request the following analysis:			Sample Location/Remarks
Samplers *(signature)*				Number of	
Date	Time	Sample Name/Number			

Relinquished by	Date/Time	Received by *(signature)*	Relinquished by *(signature)*	Date/Time	Received by *(signature)*
Relinquished by	Date/Time	Received by *(signature)*	Relinquished by *(signature)*	Date/Time	Received by *(signature)*
Relinquished by	Date/Time	Received for Lab by	Date/Time	Remarks:	

Attachment 2

A Sample of a Chain-of-Custody Seal

LAB SAMPLE

Date_____

Initials_____

Los Alamos
NATIONAL LABORATORY

DO NOT TAMPER

Attachment 3

Training Documentation Sheet

Hazard Control Plan/Operating Procedure for Chain-of-Custody for Environmental Samples

I, the undersigned, have read and fully understand the Hazard Control Plan/Operating Procedure for Chain-of-Custody for Environmental Samples.

Signature_____Date_____

Print Name_____

Self-study training_____Date_____
(Supervisor's signature)

On-the-job training_____Date_____
(Supervisor's signature)